

Patent Claims:

- 1 1. Semifinished product of composite material, consisting of  
2 a metallic matrix material (11) and of high tensile  
3 strength fibers (12) embedded in the matrix material (11),  
4 whereby the metallic matrix material (11) is formed of  
5 titanium or a titanium based alloy, characterized in that  
6 ceramic particles (13) are encased or embedded in the  
7 matrix material (11) for increasing the strength of the  
8 semifinished product with respect to torsional loading or  
9 transverse loading.
- 1 2. Semifinished product according to claim 1, characterized in  
2 that the embedded ceramic particles (13) comprise a size in  
3 the micron range to the nanometer range.
- 1 3. Semifinished product according to claim 1 or 2,  
2 characterized in that the embedded ceramic particles (13)  
3 are uniformly distributed in the matrix material (11).
- 1 4. Semifinished product according to one or more of the claims  
2 1 to 3, characterized in that the embedded high tensile  
3 strength fibers (12) are silicon carbide fibers.
- 1 5. Semifinished product according to one or more of the claims  
2 2 to 4, characterized in that the embedded ceramic  
3 particles (23) are formed of titanium nitride.

1 6. Method for the production of a semifinished product (10) of  
2 composite material, in which fibers (12) that are of high  
3 tensile strength as well as coated metallicity namely with  
4 titanium or a titanium based alloy are consolidated under  
5 the influence of pressure at high temperature to form the  
6 semifinished product (10), characterized in that in  
7 connection with the coating of the high tensile strength  
8 fibers (12) with titanium or the titanium based alloy,  
9 ceramic particles (13) are embedded in the coating of the  
10 fibers, whereby the thusly coated fibers are arranged in a  
11 desired geometry and consolidated to form the semifinished  
12 product.

1 7. Method according to claim 6, characterized in that the  
2 coating of the high tensile strength fibers (12) with  
3 titanium or the titanium based alloy is carried out under  
4 a reactive atmosphere.

1 8. Method according to claim 7, characterized in that the  
2 coating of the high tensile strength fibers (12) with  
3 titanium or the titanium based alloy is carried out under  
4 a nitrogen atmosphere, whereby nitrogen atoms together with  
5 titanium particles or particles of the titanium based alloy  
6 deposit ceramic particles (13) into the coating.

1 9. Method according to claim 8, characterized in that ceramic  
2 particles (13) in the form of titanium nitrides are  
3 deposited into the coating.

1     10. Method according to one or more of the claims 6 to 9,  
2         characterized in that the coating is carried out as PVD  
3         coating, preferably as sputtering.